REMARKS

Claims 1-16 are pending in this application. Claims 1-6, 8-13, 15, and 16 are rejected under 35 USC 103 as being unpatentable over Zorner, US 5,445,027 ("Zorner") in view of Katzir et al, US 5,445,027 (Katzir). Claims 7 and 14 are rejected under 35 USC 103 as being unpatentable over Zorner in view of Katzir, and further in view of Rosa, US 3,738,104 (Rosa).

Claims 15 and 16 are cancelled herein.

Claim 1 has been amended to include the limitations of "an image projector receiving a moving infrared image corresponding to infrared radiation emitted by a thermal barrier coating of a rotating turbine blade" and "an infrared image receptor operable for receiving the movement-compensated image without a need for an illumination source." Support for this change can be found in the specification on page 1, lines 8-26 and page 3, lines 5 - 6. Accordingly, claim 1 calls for a system that includes an image projector and an infrared image detector for acquiring an infrared image of a thermal barrier coating of a turbine blade *without* using an illumination source. Neither Zorner nor Katzir, alone or in combination, teaches or suggests the limitations recited in claim 1.

Zorner describes an optical turbine blade imaging technique that requires stroboscopic illumination to freeze an optical image of a moving turbine blade. See for example, Zorner, column 2, lines 62- 66. On the other hand, Katzir describes an imaging system for inspecting flat articles disposed on a moving conveyor belt using an illumination source in conjunction with a movable optical element. See for example, Zorner, column 4, lines 1 - 26. Both Zorner and Katzir describe optical imaging techniques using separate illumination sources to acquire optical images. Significantly, none of the cited prior art teaches or suggests imaging without the use of an illumination source. In addition, neither Zorner nor Katzir teach or suggest receiving infrared radiation emitted by a thermal barrier coating of an article. Accordingly, the combination of Zorner and Katzir fails to meet the claim features of "a system for imaging an infrared emission from a rotating turbine blade without using an

illumination source" and "an image projector receiving a moving infrared image corresponding to infrared radiation emitted by a thermal barrier coating of the rotating blade.

Furthermore, a person skilled in the art would not look to the imaging technique of Katzir to provide an imaging solution for a moving turbine blade, thus making the Zomer and Katzir references non-analogous for the present invention. Katzir describes an optical imaging system for inspecting circuit boards at a relatively slow speed compared to a rotating turbine blade inspection system that may need to image turbine blades rotating at speeds greater than 3600 RPM. Because of the large differences in speeds between a conveyor belt and a rotating turbine blade, one skilled in the art would not be expected to look to a patent describing a circuit board inspection technique to solve a turbine blade inspection problem. For all of the above reasons, claim 1, and claims 2-7 depending therefrom, are believed to be in condition for allowance.

Claim 8 has been amended to include the limitations of "imaging a thermal barrier coating of a rotating turbine blade of a turbine rotor comprising: receiving infrared radiation emitted by a first blade of a row of rotating blades of a turbine rotor using a movable image projector without using an illumination source...using the velocity to adjust a phase of movement of the movable image projector relative to the first blade to synchronize a projected image of the first blade relative to an image receptor; using the velocity to adjust a phase of movement of the movable image projector to bring a second blade into a field of view of the image projector; and using the velocity to adjust the phase of movement of the image projector to make a projected image of the second blade appear stationary relative to the image receptor." Support for this change can be found in the specification on page 3, lines 26-30, page 4, lines 17-23, page 6, lines 9 – 15 and page 7, lines 16-30. Neither Zorner nor Katzir, alone or in combination, teaches or suggests these limitations. Accordingly, the combination of Zorner and Katzir fails to support a rejection of claim 8 under 35 USC 103. Thus, claim 8, and claims 9-14 depending therefrom, are submitted to be in condition for allowance.

Reconsideration of the amended application in light of the above Remarks and allowance of claims 1-14 are respectfully requested.

Respectfully submitted,

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